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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,775	04/06/2007	Anthony Peter Hulbert	038819.57537US	5722
23911 7590 09/11/2009 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
LEBASSI, AMANUEL				
ART UNIT		PAPER NUMBER		
2617				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/579,775

**Applicant(s)**

HULBERT ET AL.

**Examiner**

AMANUEL LEBASSI

**Art Unit**

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/CDC)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Noerpel et al. US 6249677 in view of Haartsen US 6671292.

Regarding claim 1, Noerpel discloses a method of communication in a Frequency division duplex (FDD) satellite communication system comprising at least one satellite and a plurality of terrestrial terminals (abstract and Fig. 1 and 2 – satellite and multiple terminals). Noerpel discloses allocating time division multiple access (TDMA) time slots for transmission between the satellite and any one of the plurality of terminals (Fig. 3 and Fig. 6, where plurality of terminals use TDMA), such that for any given terminal, transmit time slots for transmission to the satellite and receive time slots for reception from the satellite are separated in time (col. 7, line 65 – col. 8, line 13). Noerpel discloses wherein propagation delay is not an exact number of multiples of frame length (col. 8, line 56 – col. 9, line 5 – propagation delay is different). Noerpel discloses wherein an assigned

time delay between transmit and receive time slots at the any one terminal is small compared with round trip propagation delay (col. 8, 64- col. 9, line 5, where time delay is small). Noerpel fails to disclose when the transmit time slot for one terminal causes a transmission from that one terminal to be received at another terminal overlapped in time with a receive time slot allocated for the other terminal, then those two terminals are spaced apart in distance, such that an interference path between the two terminals is negligible. However, Haartsen teaches method of communication in a Time division duplex (TDD) satellite communication system (col. 5, lines 5-7, TDD) and when the transmit time slot for one terminal causes a transmission from that one terminal to be received at another terminal overlapped in time with a receive time slot allocated for the other terminal, then those two terminals are spaced apart in distance, such that an interference path between the two terminals is negligible (col. 7, lines 48-55 where **An additional delay (dT) may be introduced by the transmitter and receiver sections and other processes therefore those two terminals are spaced apart in distance).**

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the invention of Noerpel and have it include that of Haartsen.

The motivation would have been in order to **improve immunity against interference (Haartsen, col. 1, lines 34-37).**

Regarding claim 2, Noerpel discloses signals between the terminals and the satellite are synchronized at the satellite (col. 7, lines 55-64).

Regarding claim 3, Noerpel discloses alternate time slots at the satellite are used for transmission and reception (col. 7, lines 65- col. 8, line 4).

Regarding claim 4, Haartsen teaches wherein the terminals use navigational information to estimate their propagation delay to the satellite; and thus to determine the time required to transmit into an allocated time slot (col. 5, lines 42-55).

Regarding claim 5, Noerpel discloses wherein the satellite transmits ephemeris data to the terminals to aid in determining the propagation delay (Fig. 12 and col. 10, lines 21-36).

Regarding claim 6, Noerpel discloses wherein the position of each terminal is determined by the satellite, using location data provided by each terminal delay (col. 8, lines 56-62).

Regarding claim 7, Noerpel discloses wherein downlink timeslots are allocated to terminals at random (col. 8, lines 56- col. 9, line 5).

Regarding claim 8, Noerpel discloses wherein uplink timeslots are allocated in order to avoid a transmission at one terminal being received by another terminal at a time for which the other terminal has been allocated a receive time slot (See Fig. 7)

Regarding claim 9, the combination of above discloses wherein terminal receive time slots are allocated randomly; wherein allocation of terminal transmit time slots includes the steps of: calculating the minimum distance between a transmitting terminal and a receiving terminal which receives the transmission; repeating this calculation for all terminal transmit time slots; repeating the calculation for all terminals; calculating the resulting interference if each terminal used its worst terminal time slot; ranking the terminals according to which cause the worst interference with another terminal; and starting from the worst terminal, allocating the best time slot for that terminal, discarding terminal transmit time slots where transmit and receive time slots overlap in the same terminal (see above).

Regarding claim 10, Noerpel discloses a method, comprising allocating, by a satellite, a plurality of time slots on a frequency for transmission to and reception from a plurality of terminals, wherein the plurality of time slots provide Frequency division duplexing (FDD)/time division multiple access (TDMA) time slots on the frequency (abstract and Fig. 1 and 2 – satellite and multiple terminals). Noerpel discloses transmitting, by the satellite to a first of the plurality

of terminals, in one of the plurality of time slots (col. 4, lines 62 – col. 5, line 8) ;and receiving, by the satellite from a second of the plurality of terminals, in another of the plurality of time slots, wherein when the first and second terminals are spaced apart a predetermined distance, the first terminal transmits to the satellite over the frequency at a same time as the second terminal receives from the satellite over the frequency (col. 6, lines 37-48). Noerpel fails to teach wherein when the first and second terminals are spaced apart a predetermined distance.

However, Haartsen teaches wherein when the first and second terminals are spaced apart a predetermined distance (col. 7, lines 48-55 where **An additional delay (dT) may be introduced by the transmitter and receiver sections and other processes therefore those two terminals are spaced apart in distance).**

Regarding claim 11, Haartsen discloses receiving, by the satellite, location information from the first and second terminals, wherein the received location information is used for determining whether the first and second terminals are spaced apart the predetermined distance (**col. 3, lines 36-39**).

Regarding claim 12, Haartsen discloses wherein the plurality of time slots are arranged into a plurality of frames, each of the plurality of frames having a duration less than a duration of a round trip propagation delay between at least one of the plurality of terminals and the satellite (**col. 7, lines 52-55**).

***Conclusion***

1. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Amanuel Lebassi, whose telephone number is (571) 270-5303. The Examiner can normally be reached on Monday-Thursday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Nick Corsaro can be reached at (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Amanuel Lebassi*  
/A. L./  
09052009



Art Unit: 2617

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617